CLAIMS:

1. A device for the three-dimensional reconstruction of a moving object in a body volume, comprising a memory which contains a series of two-dimensional projection photographs (A_1, A_2, A_n, A_N) of the body volume from different directions, as well as a data processing unit which is coupled to the memory and which is set up to execute the following steps:

a) Segmentation of the image ($Pr_n(Q)$) of at least one feature point (Q) of the object or its surroundings in the projection photographs (A_n);

b) Specification of a spatial reference position (Q_0) for each feature point (Q);

c) Calculation of transformations (Σ_n, σ_n) of the object space and of the projection photographs (A_n), after the use of which the projection of the transformed reference position coincides with the respective transformed image of the feature point;

d) Three-dimensional reconstruction of the object from the projection photographs (A_n) with the aid of the calculated transformations (Σ_n, σ_n).

2. Device as claimed in claim 1, characterized in that the spatial reference position (Q_0) of a feature point (Q) is reconstructed in step b) from two projection photographs that originate from a similar state of the body volume, in particular from a heartbeat phase of the same type.

3. Device as claimed in claim 1, characterized in that the transformation (Σ_n) of the object space or the transformation (σ_n) of the projection photographs is the same image.

4. Device for the three-dimensional reconstruction of an object (5) in a body volume that is subject to cyclical self-movement, comprising a memory (3) which contains a series of two-dimensional projection photographs (A_n) of the body volume from different directions together with the respective corresponding values of a parameter (E_n) that characterizes the cyclical self-movement, as well as a data processing unit (4) which is coupled to the memory (3) and which is set up to execute the following steps:

a) Segmentation of the image (R_n, Q_n) of at least one feature point (R, Q) of the

object (5) in the projection photographs (A_n);

b) Classification of the projection photographs (A_n) into classes (K_p) which each correspond to a given phase (E_p^{Cl}) of the cyclical self-movement;

c) Three-dimensional localization of said feature point (R, Q) for each of the said classes (K_p) from at least two projection photographs (A_{n1}, A_{n2}) of this class;

d) Calculation of three-dimensional transformations (Σ_{p_m}) which describe the movement ($S^R_{p\_m}$, $S^Q_{p\_m}$) of the localized feature point (R, Q) between different phases (p, m) of the cyclical self-movement;

e) Three-dimensional reconstruction of the object (5) from the projection photographs (A_n) with the aid of the calculated transformations (Σ_{p_m}).

5. Device as claimed in claim 1 or 4, characterized in that the transformations (σ_n, Σ_n, Σ_{p_m}) comprise a translation, a rotation, a dilation and/or an affine transformation.

6. Device as claimed in claim 1 or 4, characterized in that it includes an input unit for interactive segmentation in step a).

7. Device as claimed in claim 1 or 4, characterized in that it includes an image-producing device (1) for producing the series of two-dimensional projection photographs (A_n) of the body volume, preferably an X-ray apparatus (1) and/or an NMR device.

8. Device as claimed in claim 1 or 4, characterized in that it includes a sensor device (2) for recording a parameter (E_n) that characterizes a cyclical self-movement of the body volume in parallel with the production of the projection photographs, wherein the sensor device preferably comprises an electrocardiograph device (2) and/or a respiration sensor.

9. Method for the three-dimensional reconstruction of a moving object in a body volume based on a quantity of data which contains a series of two-dimensional projection photographs (A_1, A_2, A_n, A_N) of the body volume from different directions, comprising the steps:

a) Segmentation of the image ($Pr_n(Q)$) of at least one feature point (Q) of the object or its surroundings in the projection photographs (A_n);

b) Specification of a spatial reference position (Q_0) for each feature point (Q);

c) Calculation of transformations (Σ_n, σ_n) of the object space and of the projection photographs (A_n), after the use of which the projection of the transformed reference position coincides with the transformed image of the feature point each time;

d) Three-dimensional reconstruction of the object from the projection photographs (A_n) with the aid of the calculated transformations (Σ_n, σ_n).

10. Method for the three-dimensional reconstruction of an object (5) in a body volume that is subject to a cyclical self-movement, based on a quantity of data which contains a series of two-dimensional projection photographs (A_n) of the body volume from different directions together with the respective corresponding values of a parameter (E_n) that characterizes the cyclical self-movement, comprising the steps:

a) Segmentation of the image (R_n, Q_n) of at least one feature point (R, Q) of the object (5) in the projection photographs (A_n);

b) Classification of the projection photographs (A_n) into classes (K_p) which each correspond to a given phase (E_p^{Cl}) of the cyclical self-movement;

c) Three-dimensional localization of said feature point (R, Q) for each of the said classes (K_p) from at least two projection photographs (A_{n1}, A_{n2}) of this class;

d) Calculation of three-dimensional transformations (Σ_{p_m}) which describe the movement ($S^R_{p\_m}$, $S^Q_{p\_m}$) of the localized feature point (R, Q) between different phases (p, m) of the cyclical self-movement;

e) Three-dimensional reconstruction of the object (5) from the projection photographs (A_n) with the aid of the calculated transformations (Σ_{p_m}).